What is claimed is:

1. A method of manufacturing a light-absorbing matrix for a cathode-ray tube (CRT), including a plurality of substantially equally sized openings therein, on an inner surface of a faceplate panel of the cathode-ray tube having a color selection electrode spaced from the inner surface of the faceplate panel, the color selection electrode having a plurality of slots, comprising the steps of:

(a) exposing a first photoresist layer formed on the interior surface of the faceplate panel to light through the plurality of slots in the color selection electrode, wherein the light is generated from three source locations including two outer source positions and an inner source position, wherein the two outer source positions are symmetrically located about the inner source position, and wherein the inner source position is a central source position;

(b) removing unexposed portions of the first photoresist layer;

(c) overcoating the interior surface of the faceplate panel with a light-absorbing matrix material;

(d) removing retained portions of the first photoresist layer to form first guardbands of light-absorbing material on the inner surface of the faceplate panel; and

(e) repeating steps (a) through (d) twice more to form second guardbands of light-absorbing material and third guardbands of light-absorbing material, using a second photoresist layer and a third photoresist layer, respectively, wherein two source locations of the three source locations for each of the second and third exposure steps are asymmetrically located with respect to the inner source positions.

2. The method of claim 1, further comprising the step of applying a protective coating on the light-absorbing matrix after formation of the third guardbands on the surface of the faceplate panel.

3. The method of claim 2 wherein the protective coating comprises potassium silicate.

4. The method of claim 1 wherein the light-absorbing matrix material comprises graphite.

5. The method of claim 4 wherein the graphite is coated with an oxidation barrier.

6. The method of claim 5 wherein the oxidation barrier is selected from the group consisting of silicon dioxide (SiO_2) and aluminum oxide (Al_2O_3).

7. The method of claim 1 wherein step (c) further comprises heating the light-absorbing material overcoated on the surface of the faceplate panel to a temperature within a range of about 40 ^{0}C to about 60 ^{0}C.

8. The method of claim 1 wherein the light-absorbing material overcoated on the surface of the faceplate panel has a solids content within a range of about 5 % by weight to about 8 % by weight.

9. The method of claim 1 wherein the second photoresist layer and the third photoresist layer are applied at different spin speeds from each other as well as from the first photoresist layer.

10. The method of claim 1 wherein the second light-absorbing material layer and the third light-absorbing material layer are applied at different spin speeds from each other as well as from the first light-absorbing material layer.

11. The method of claim 1 wherein the first photoresist layer, the second photoresist layer and the third photoresist layer are each applied on the faceplate panel using different orientations for the faceplate panel with respect to a fixed axis.

12. The method of claim 1 wherein the first light-absorbing material layer, the second light-absorbing material layer and the third light-absorbing material layer are each applied on the faceplate panel using different orientations for the faceplate panel with respect to the fixed axis.

13. A method of manufacturing a light absorbing matrix for a cathode-ray tube (CRT) including a plurality of substantially equally sized openings therein, on an inner surface of a faceplate panel of the cathode-ray tube having a color selection electrode spaced from the inner surface of the faceplate panel, the color selection electrode having a plurality of slots, comprising the steps of:

(a) applying a first photoresist layer on the interior surface of the faceplate panel whose solubility is altered when exposed to light;

(b) exposing the first photoresist layer to light through the slots in the color selection electrode from at least three source positions including a position at or near a central source position, 0, that is aligned with a color source and two symmetrically displaced positions, $-\Delta X$ and $+\Delta X$, relative to the central source position, 0;

(c) removing unexposed portions of the first photoresist layer;

(d) over coating the interior surface of the faceplate panel with a light-absorbing matrix material;

(e) removing retained portions of the first photoresist layer to form first guardbands of light-absorbing material on the inner surface of the faceplate panel; and

(f) repeating steps (a) through (e) twice more to form a second guardband of light-absorbing material and a third guardband of light-absorbing material using a second photoresist layer and a third photoresist layer, respectively, wherein:

(i) three source positions for printing the second guardband include exposures from the following source positions: a source position displaced from a primary source position, -X, by ΔX toward the central source position, 0, a position displaced from a secondary source position, +2X, by ΔX toward the central source position 0 and a third source position at or near the primary source position, -X, wherein the third source position is located at least between $-\Delta X$ and $+\Delta X$ from the primary source position -X; and

(ii) three source positions for printing the third guardband include exposures from the following source positions: a source position displaced from another primary source position, +X, by ΔX toward the central source position, 0, a position displaced from another secondary source position, -2X, by ΔX toward the central source position 0 and another third source position at or near the another

primary source position, +X, wherein the another third position is located at least between -ΔX and +ΔX from the another primary source position +X.

14. The method of claim 13 wherein the second guardband is printed before the first guardband.

15. The method of claim 13 wherein the third guardband is printed before the first guardband.

16. The method of claim 13 wherein the third source position is located at least within Δ/2 of the primary source position, -X, for printing the second guardbands.

17. The method of claim 13 wherein the another third source position is located at least within ΔX/2 of the another primary source position, +X, for printing the third guardbands.

18. A method of forming a light-absorbing matrix for a cathode-ray tube (CRT) including exposing to light and selectively hardening photoresist material layers on the inner surface of the faceplate panel of the cathode-ray tube (CRT), comprising the steps of:

(a) projecting at least three light sources for a first exposure onto a first photoresist material layer through slots of a mask located between the light sources and the inner surface of the faceplate panel wherein one of the light sources is aligned with a first color source position, G, along a central color source position, 0, and the remaining light sources are positioned from at least two symmetrically displaced positions, -ΔX and +ΔX, on either side of the central color source position, 0;

(b) projecting the light sources for a second exposure onto a second photoresist material layer through slots of the mask wherein at least one of the light sources is aligned with a second color source position, B, at a distance, -X, from the central color source position, 0, and two light sources are located at positions, -X + ΔX and 2X - ΔX, from the central color source position, 0; and

(c) projecting the light sources for a third exposure onto a third photoresist material layer through slots of the mask wherein at least one of the light sources is aligned with a third color source position, R, at a distance, X, from the central color source position, 0, and two light sources are located at positions, X - ΔX and -2X + ΔX, from the central color source position, 0.

19. A method of manufacturing a light-absorbing matrix, including a plurality of substantially equally sized openings therein, on an inner surface of a faceplate panel of a cathode-ray tube (CRT) having a color selection electrode with a transmission of about 30 % to about 45 %, that is spaced from the inner surface of the faceplate panel wherein the color selection electrode has a plurality of slots, comprising the steps of:

(a) exposing a first photoresist layer formed on the interior surface of the faceplate panel to light through the plurality of slots in the color selection electrode, wherein the light is generated from three source locations including two outer source positions and an inner source position, wherein the two outer source positions are symmetrically located about the inner source position, and wherein the inner source position is at or near a central source position;

(b) removing unexposed portions of the first photoresist layer;

(c) overcoating the interior surface of the faceplate panel with a light-absorbing matrix material;

(d) removing retained portions of the first photoresist layer to form first guardbands of light-absorbing material on the inner surface of the faceplate panel; and

(e) repeating steps (a) through (d) twice more to form second guardbands of light-absorbing material and third guardbands of light-absorbing material, using a second photoresist layer and a third photoresist layer, respectively, wherein two source locations of the three source locations for each of the second exposure step and the third exposure step are asymmetrically located with respect to the inner source positions.

20. A method of manufacturing a light-absorbing matrix, including a plurality of substantially equally sized openings therein, on an inner surface of a faceplate panel

of a cathode-ray tube (CRT) having a color selection electrode spaced from the inner surface of the faceplate panel, the color selection electrode having a plurality of slots, comprising the steps of:

(a) exposing a first photoresist layer formed on the interior surface of the faceplate panel to light through the plurality slots in the color selection electrode, wherein the light is generated from three source locations including two outer source positions and an inner source position, wherein the two outer source positions are asymmetrically located about the inner source position, and wherein the inner source position is at or near a central source position;

(b) removing unexposed portions of the first photoresist layer;

(c) overcoating the interior surface of the faceplate panel with a light-absorbing matrix material;

(d) removing retained portions of the first photoresist layer to form first guardbands of light-absorbing material on the inner surface of the faceplate panel; and

(e) repeating steps (a) through (d) twice more to form second guardbands of light-absorbing material and third guardbands of light-absorbing material, using a second photoresist layer and a third photoresist layer, respectively, wherein at least one of the three source locations for each of the second exposure step and the third exposure step are symmetrically located with respect to the inner source position .